WHAT IS CLAIMED IS:

1. A microdevice for supporting a flowing fluid, the microdevice comprising:

a substrate; and

a pair of generally parallel, spaced wall members on the substrate, wherein at least one of the wall members includes a pair of structures defining an opening.

2. The microdevice of claim 1 wherein the pair of structures are beveled structures.

3. The microdevice of claim 1 wherein the pair of structures are beveled structures, and wherein each of the beveled structures comprises a pair of inwardly tapering wall surfaces terminating in an apex.

4. The microdevice of claim 3 wherein each of the tapering wall surfaces form an angle of about 2 degrees to about 20 degrees with respect to a side surface of an intermediate portion of the wall member.

5. The microdevice of claim 3 wherein each tapering wall surfaces is curved.

6. The microdevice of claim 1 wherein a distance between the pair of structures is about 50 microns to about 400 microns.

7. The microdevice of claim 1 comprising three or more generally parallel wall members on the substrate.

8. The microdevice of claim 1 wherein the spaced wall members define a fluid channel that contains a fluid with a laminar flow profile.

9. The microdevice of claim 1 further comprising a cover disposed on the wall members.

10. The microdevice of claim 1 wherein each of the wall members include an opening, and wherein the openings in the respective wall members are substantially aligned to form a slot.

11. The microdevice of claim 1 further comprising a slide member, wherein the slide member is disposed on the substrate and is adapted to slide through the opening.

12. An analytical assembly comprising:

the microdevice of claim 1; and

a probe having an end portion that is insertable between the spaced wall members.

13. A microdevice comprising:

a substrate;

a plurality of wall members; and

a plurality of fluid channels, wherein each of the fluid channels is defined by adjacent wall members in the plurality of wall members, wherein each wall member comprises an opening that is formed by opposed beveled structures of the wall member and that communicates the adjacent fluid channels.

14. The microdevice of claim 13 wherein the openings in the respective wall members are substantially aligned to form a slot.

15. The microdevice of claim 13 wherein the openings in each of the wall members are structured to permit fluids having a laminar profile flowing on opposite sides of respective wall members from intermixing.

16. The microdevice of claim 13 further comprising a cover on the wall members and a lid spaced from the cover.

17. A method for detecting a characteristic of a fluid, the method comprising:

(a) inserting a probe into a fluid channel in a microdevice;

(b) detecting a characteristic of a first fluid flowing in the first fluid channel;

(c) moving the probe from the first fluid channel through an opening in one of the wall members defining the first fluid channel and to a second fluid channel adjacent to the first fluid channel; and

(d) detecting a characteristic of a second fluid flowing through the second fluid channel.

18. The method of claim 17 wherein the probe comprises an electrical sensor.

19. The method of claim 17 wherein at least the first fluid contains proteins.

20. The method of claim 17 wherein each of the fluid channels has a width less than about 1000 microns.

21. The method of claim 17 wherein the first and the second fluids comprise a laminar profile.

22. The method of claim 17 wherein (b)-(d) are performed without exposing an end portion of the probe to air.

23. An analytical assembly comprising:

a detection assembly comprising a plurality of detection devices; and

a microdevice comprising a plurality of wall members and a plurality of fluid channels, wherein each of the fluid channels is defined by adjacent wall members in the plurality of wall members.

24. The analytical assembly of claim 23 wherein the plurality of detection devices comprise a plurality of probes.

25. The analytical assembly of claim 23 wherein the plurality of detection devices comprise a plurality of optical detectors.

26. The analytical assembly of claim 23 wherein the detection devices are disposed in the fluid channels in the microdevice.

27. A method for detecting a characteristic of a fluid, the method comprising:

flowing a plurality of different fluids through respective fluid channels in a microdevice, each of the fluid channels in the microdevice being formed by adjacent pairs of wall members; and

detecting characteristics of the plurality of different fluids substantially simultaneously using a plurality of detection devices as the different fluids flow through their respective fluid channels.

28. The method of claim 27 wherein the detection devices comprise a plurality of probes, wherein the plurality of probes is insertable within the plurality of fluid channels.